IBM

Accessibility and comfort features of IBM personal computers and monitors

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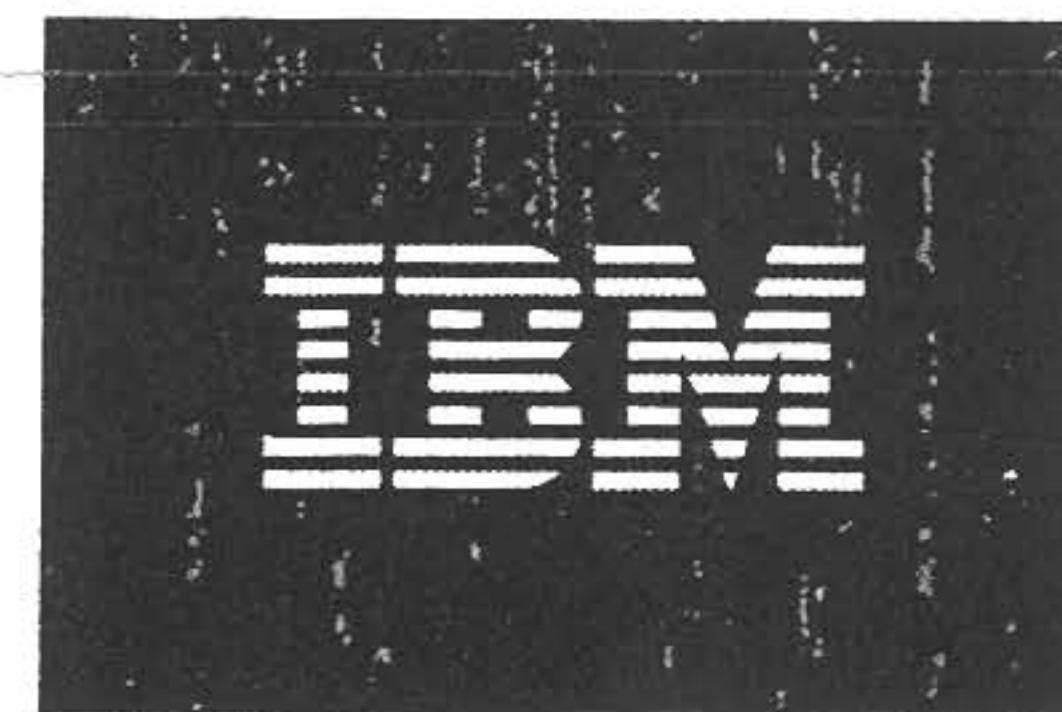
Accessibility

- *Designing with the requirements of persons with disabilities in mind often results in products that are more usable for everyone.*
- *Compliance with accessibility standards and regulations around the world helps ensure more user-friendly technology devices for all users.*
- *IBM pioneered the focus on accessibility in its research and development labs. Today, the IBM Accessibility Center helps consolidate knowledge within IBM to benefit all accessibility efforts.*

Many products we might take for granted today actually began as innovations targeted for people with disabilities. That's because products originally developed for a niche-market—for example, text-to-speech technology to aid the visually impaired—frequently become items that are used in mainstream society.

This is one way accessibility features make their way into products used by everyone. Conversely, accessibility can be part of the design of mainstream products from their inception, so that they are accessible to all, including users with impairments.

Accessibility, as it relates to computers, can be defined as full access to, and use of, information and its technology by people with disabilities. The IBM focus on accessibility dates back to the earliest days of personal computer systems, when access to information technology began to migrate from the computer room to the office environment.

Around the globe, IBM personnel involved in research, engineering, manufacturing, software development, sales and support continue the long-standing IBM focus on accessibility initiatives. Their collaboration has led to a recognition of the differences between individuals and the adaptations necessary to create products, offerings and systems that give every user access to the benefits of technology.

The IBM Personal Computing Division is widely recognized for its focus on human factors and ergonomics and continues to innovate with products, services and offerings to deliver business advantage. For example, IBM ThinkVantage™ Technologies and ThinkVantage Design are innovations that do just that—while demonstrating the IBM commitment to making notebooks, desktops and monitors easier and more comfortable to use for everyone, including those with special needs.

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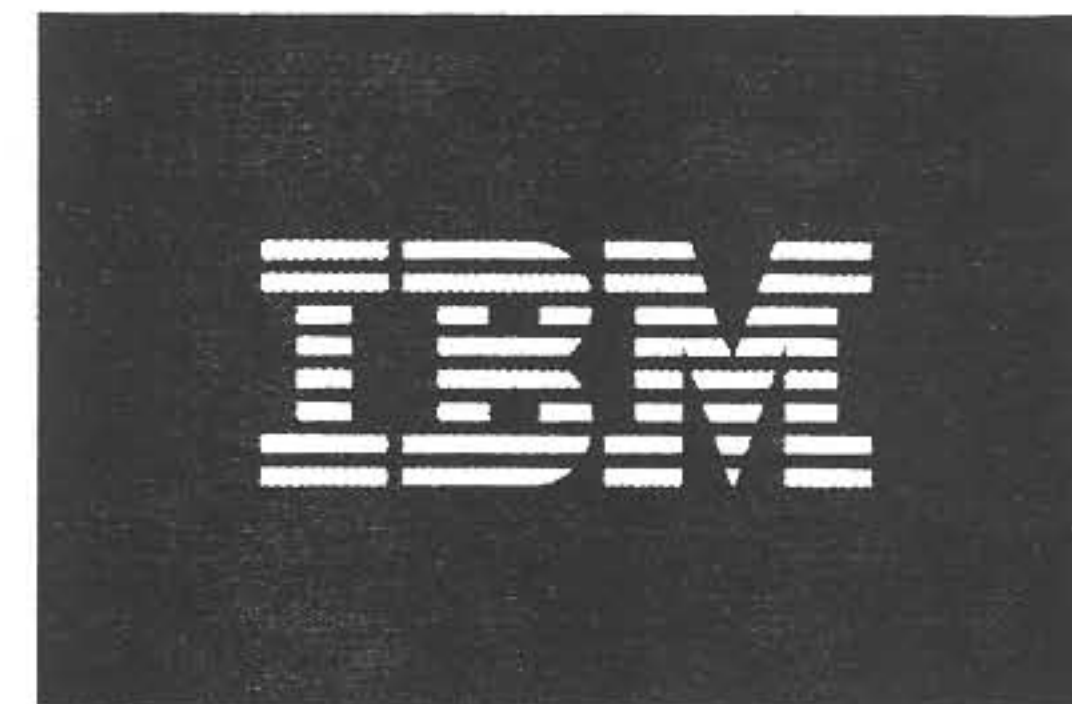
Standards and regulations

In the United States in 1998, the president signed into law the Workforce Investment Act, which amended Section 508 of the Rehabilitation Act. This significantly expanded and strengthened the technology access requirements of the original 1986 act.

The revised law requires electronic and information technology procured by the government after June, 2001 to be accessible to federal employees who have disabilities, as well as to members of the public with disabilities who need to use that technolc y.

IBM personal systems support Section 508 requirements by enhancing accessibility for users with disabilities and with features that go above and beyond.

The IBM commitment to accessibility and comfort

IBM strives to provide greater access to information through technology for people with disabilities. ThinkPad® notebooks, NetVista™ desktops and the keyboards and monitors offered with desktops provide a number of comfort and accessibility features—many designed specifically for persons with physical limitations.

IBM software facilitates access

New IBM ThinkPad notebooks and NetVista desktops are delivered with a special suite of software elements to make using these computers easier for everyone.

Access IBM

Access IBM provides one-touch access to IBM on-system utilities and information. The hierarchical organization of the software simplifies access to a universe of information and function specific to the users' ThinkPad notebook or NetVista desktop. This helps users set up, learn and better use

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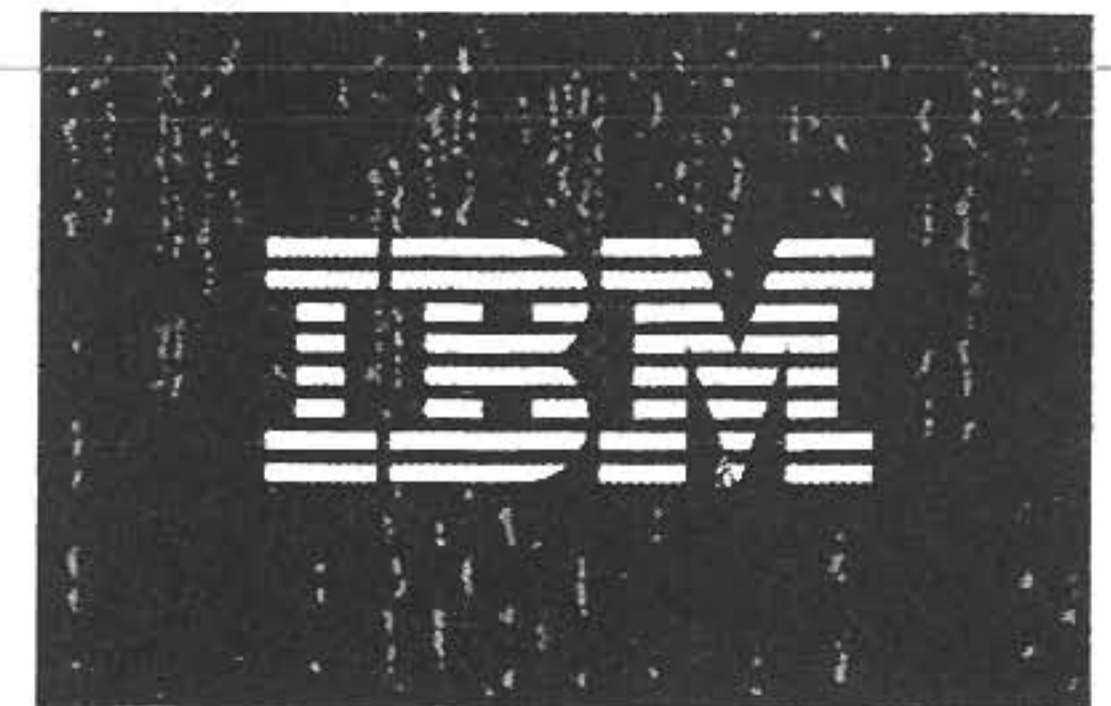
their system. Access IBM is available on ThinkPad notebooks through one touch of the hardware button and on both ThinkPad notebooks and NetVista desktops through the "Start menu" to accommodate user preference.

Access IBM also includes unique onboard utilities and self-help tools to assist with key tasks and resolving common system problems. The tools are machine specific and designed to help save the users' time and reduce the organization's user-support budget. Access Connections is one of these tools.

Access Connections

For mobile users moving from one networking environment to another (such as office to home), Access Connections software enables users to quickly and easily switch among previously defined connectivity settings to match the current network connection environment.

These software programs help people with disabilities to maximize their computing experience. For example, the programs support interfaces commonly used by screen readers and screen magnifiers (as well as customizable display attributes—color, contrast, font size) that help those with visual impairments to make better use of the technology.

Hardware accessibility and comfort features

Here is a sample of the features found today across the line of new ThinkPad X, T, R and A series notebooks. (Some features are also common to IBM keyboards and IBM monitors used with desktops.)

IBM keyboard: ThinkPad notebooks feature an ISO-standard, full-stroke keyboard, as do IBM keyboards for NetVista desktops. IBM keyboards maintain ISO-recommended key travel distance and pressure, enabling the proper key-push feedback to help promote productivity. The space bar on ThinkPad notebooks is wider than on most other notebooks and can help users make fewer errors, for example in pressing nearby keys when using this key. In addition, a key-remapping software utility, available for most new

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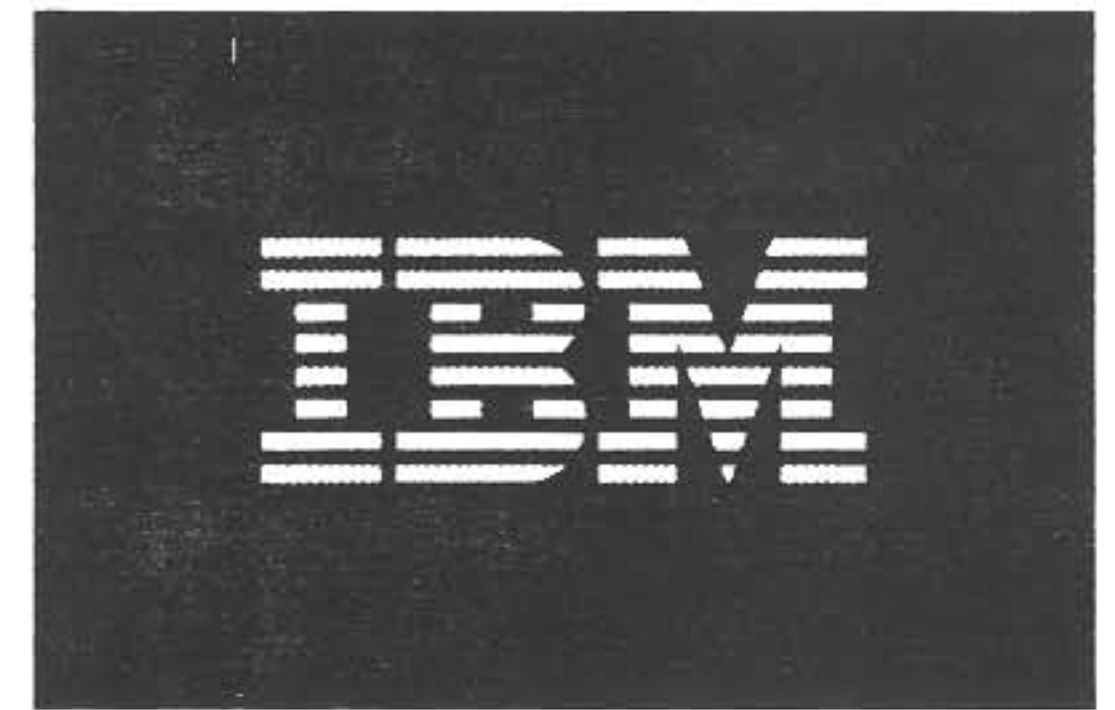
ThinkPad notebooks, enables users to assign other functions to keys (such
as assigning the Microsoft® Windows® key function to the left or right control
keys). The "Esc" key is located away from, and is larger than, all the other
keys, making it easy to locate and activate.

Individual volume control buttons: Dedicated volume control buttons on
new ThinkPad notebooks and on IBM Rapid Access keyboards for NetVista
desktop and other users let you increase, decrease or mute sound with one
button press—a feature both you and those around you will appreciate.

TrackPoint ® pointing device: This red, eraser-shaped controller strategically
located on the keyboard between the G, H and B keys (along with three click
buttons located beneath the space bar) let you control the onscreen cursor,
navigate software applications and surf the Internet[1]—all without removing
your hands from the keyboard.

You can control the TrackPoint pointing device and navigate screen displays
by applying pressure on the non-slip controller. Three click buttons (located
near where your thumbs would naturally rest) operate like the buttons on a
traditional mouse enabling you to select and activate features, display
menus, scroll, etc. In addition, the pointer speed and sensitivity can be set,
satisfying users who prefer either a firm or a light touch.

IBM also now offers three TrackPoint cap choices, enabling customers to
further customize their ThinkPad notebook to fit the way they want to work.
Two new shapes developed over two years—soft dome and soft rim—give
users a choice of working with the style they find most comfortable. New
ThinkPad notebooks ship with all three: a classic cap and one each of
the two new shapes.

IBM ThinkPad UltraNav™ multi-pointing device: Select IBM ThinkPad
models feature the UltraNav device, an example of IBM ThinkVantage
Design, combining the latest full-function TrackPoint pointing device with a
new IBM-customized touch pad.

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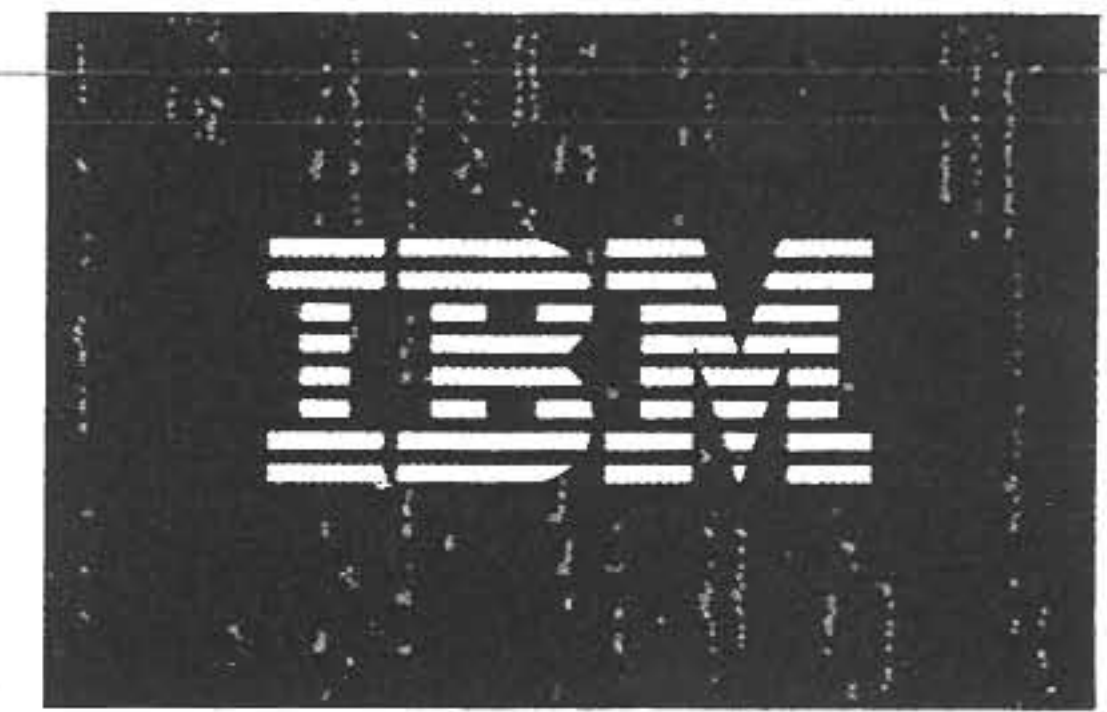
Designed using detailed research and analysis, UltraNav couples the most advanced TrackPoint system to date with an IBM-customized touch pad from Synaptics, a world leader in touch pad technology, and easy setup and customization using IBM UltraNav Wizard software.

The IBM-customized touch pad includes expertly-designed wrap around buttons that have the same touch and feel as the IBM TrackPoint device for maximum usability. Touch pad corners can be used as "hot buttons" to launch up to four applications or Web sites and the entire touch pad may be used as a scrolling device.

Full screen magnifier function: By simultaneously pressing the Fn key and the space bar on new ThinkPad models, the screen fonts and objects are instantly enlarged. A second press of the two keys returns the screen to the previous resolution. It's an easy way to get a quick look at small items on your screen. In addition, icon placement settings on the desktop remain as you want them in each resolution rather than re-setting each other's, when switching back and forth between resolutions. This resolves a key frustration users mention when switching back and forth among resolutions using other means.

TrackPoint "Magnifier" function: This alternative for TrackPoint cursor focus can be set so that screen contents are shown larger around the periphery of the ThinkPad TrackPoint cursor to help reduced-vision users.

"Cross-hair cursor" function: An alternative for TrackPoint cursor focus, this enables its location on the screen to appear more obvious, another enhancement designed to help ThinkPad users with reduced vision.

Sticky-key support: ThinkPad notebook keyboards provide sticky-key support for the Fn (function)-F key combinations, similar to the Microsoft Windows support for the Alt-n and Ctrl-n key combinations. This Fn-F key support enables sequential rather than concurrent key presses on ThinkPad notebooks, unique among notebooks across the industry, supporting and expanding the power of Windows accessibility options.

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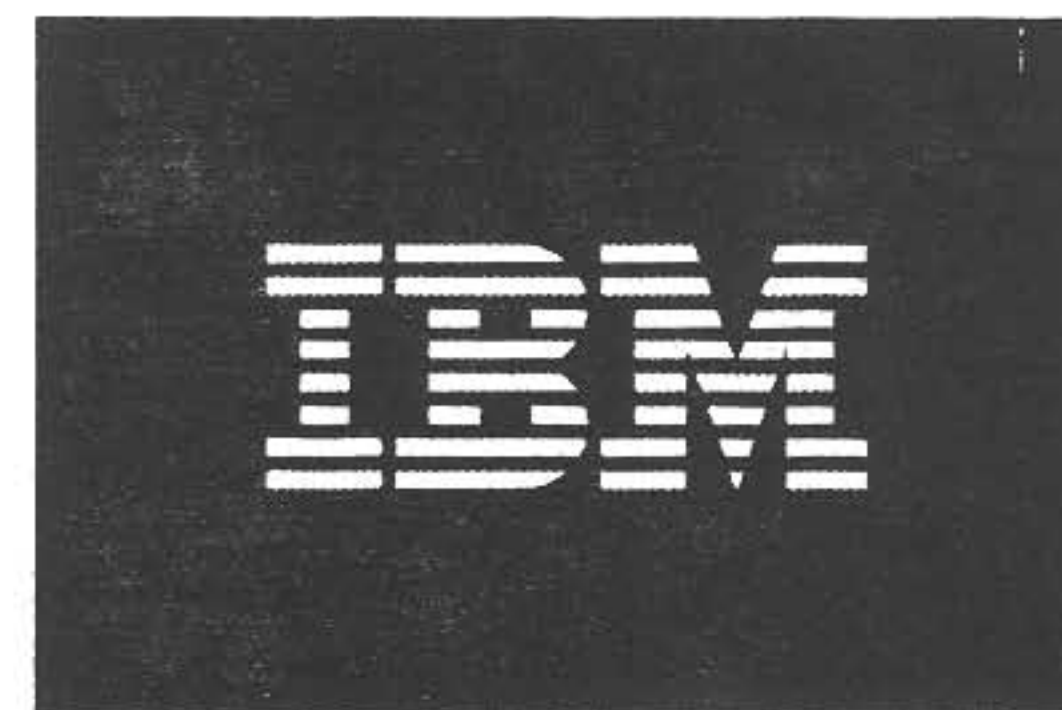
This means ThinkPad notebook users can use their Alt, Ctrl <u>and</u> Fn key combinations in sequence, instead of in concert (holding down more than one key at the same time). People with mobility limitations can in this way more easily use these keys and the applications supporting them.

Arrow key ridges: A small ridge has been added to the arrow keys on ThinkPad keyboards. These ridges provide extra traction for users who may operate their ThinkPad notebook using a hand or mouth stick.

ThinkLight™ keyboard light: Working in low-light conditions is easier on the eyes, thanks to a light-emitting diode located on the top display edge of ThinkPad notebooks. The tiny ThinkLight shines down and illuminates the keyboard. Users turn this on and off via the keyboard, with the Fn and Pg-Up key combination.

Angled front: To make ThinkPad notebooks easier to carry, the front is angled. This thinner profile makes them easier to grip securely—an important feature for people with smaller hands.

Locking latches/easy-open covers: ThinkPad notebook covers are engineered with two "smart latches" that make them easy to open—even with one hand. The latches are considered smart because they are designed to keep the cover in the open position when activated to open. The latches will not close with the weight of the cover, they require moderate downward force to do so.

This enables a user to open first one latch, then the other using one hand, and then lift the cover. Most other single-latch cover designs do not accommodate in this way the easy opening of the latch and then lifting of the cover.

In addition, two latches (instead of one) provide better protection of the critical electrical connections between the display and the main processor. The design and placement of these latches also ensure the ThinkPad

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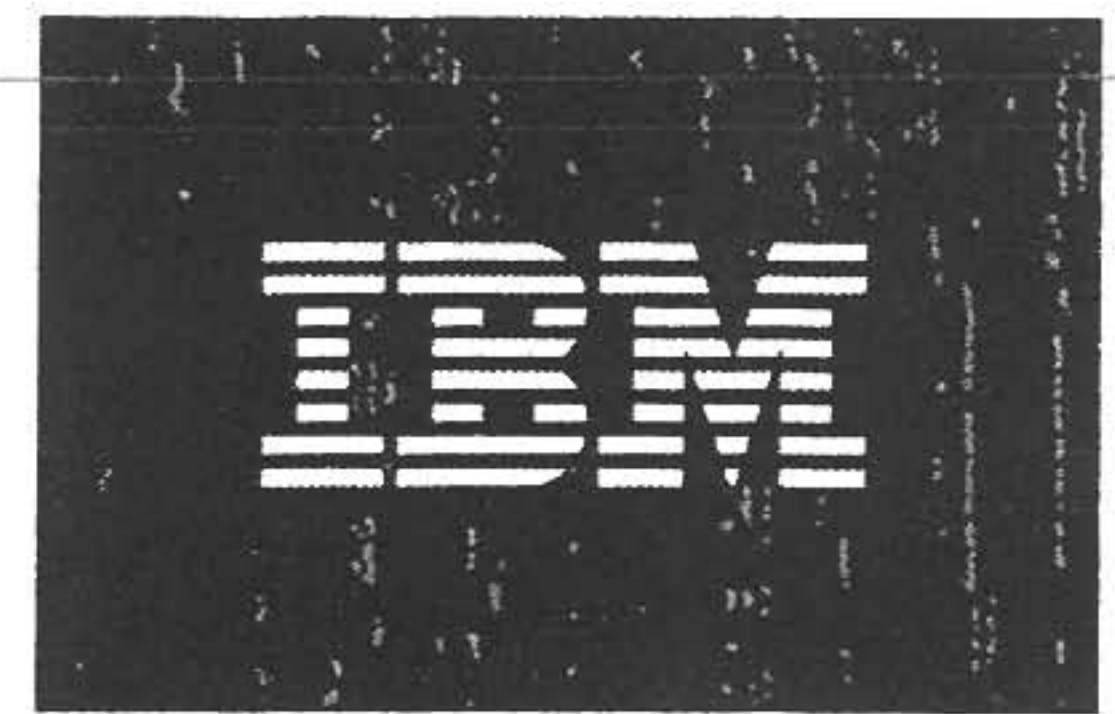
notebook doesn't bow over time as some one-latch systems can do due to lateral pressure on the display hinges.

Modular Ultrabay™ 2000 and Ultrabay Plus: Select ThinkPad models feature these bays for fast and easy switching of options (such as numeric keypad, optical recording and storage devices and more). The Ultrabay Plus enables hot-swapping of items, and a simple release latch lets you effortlessly exchange options.
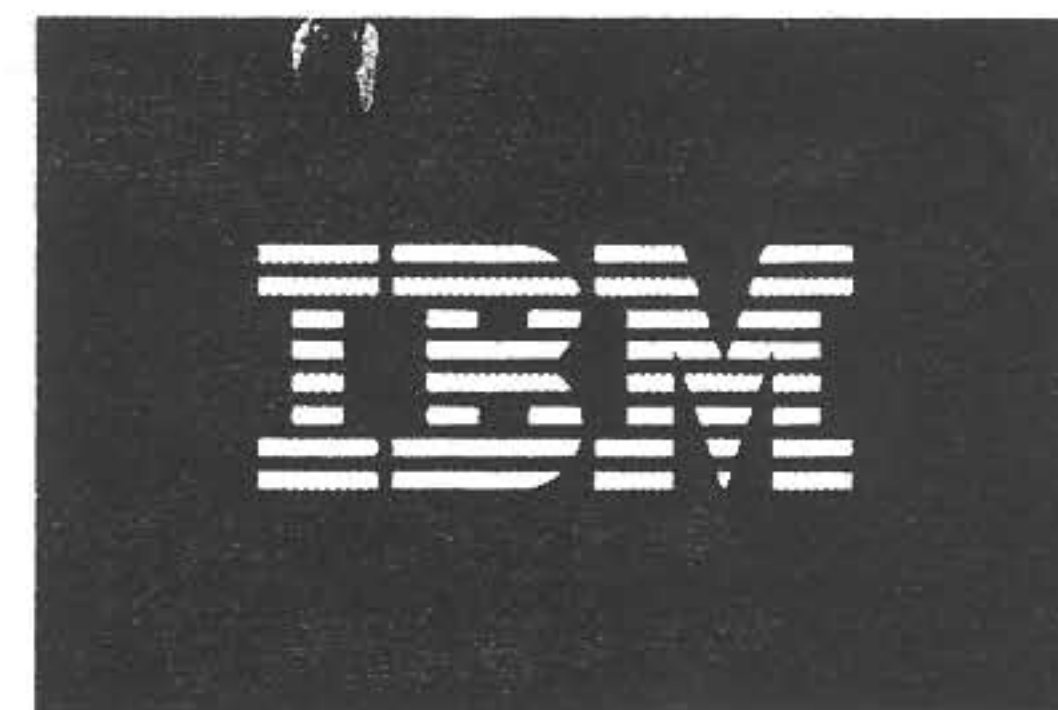
IBM monitors are engineered for accessibility

IBM is equally committed to designing visual products that provide easy access for all users. The control buttons and keys on IBM monitors are designed to meet industry standards for accessible force profiles so users with mobility impairments will find them easy to use.

Button and key layouts on IBM monitors are engineered to require minimal reach and dexterity and to be of adequate size and shape for activation— recessed in the housing or concave button shape. The engineering of the onscreen display function also takes into account users who need high visual contrast.

For IBM monitors, volume controls are enabled through accessible hardware buttons on the monitors as well as via IBM Rapid Access keyboards. On these keyboards (and on ThinkPad keyboards), a tactile volume control lets users avoid navigating software menus in order to simply adjust the volume.

Accessibility benefits all users

Smart design and intuitive functionality benefit everyone who uses technology, including those with disabilities. IBM maintains its commitment to producing products designed to enable all users to work to their full potential by making the systems easy to use, comfortable and enjoyable for everyone.

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1 Requires separate Internet access account.

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